

In re Patent Application of:
ZAKHAROFF
Serial No. 10/786,450
Filing Date: **FEBRUARY 25, 2004**

In the Claims:

This listing of claims replaces all prior versions and listing of claims in the application.

1. (Currently Amended) A communications system comprising:

at least one destination server for hosting a plurality of electronic mail (email) message boxes;

a plurality of communications devices for generating email messages each associated with a respective message box; and

a delivery server comprising a plurality of queues and a controller for

storing the email messages generated by said communications devices in a first queue, and attempting to send the stored email messages to said at least one destination server at a first sending rate,

moving email messages stored in said first queue to a second queue based upon receipt of a delivery failure message,

attempting to send email messages stored in said second queue to said at least one destination server at a second sending rate less than the first sending rate, and

moving email messages having a common characteristic with a successfully delivered email message from said second queue to said first queue

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~~having a common characteristic with a successfully
delivered email message.~~

2. (Original) The communications system of Claim 1 wherein the delivery failures are based upon a failure to deliver email messages to respective message boxes; and wherein the common characteristic comprises a common message box.

3. (Original) The communications system of Claim 1 wherein said at least one destination server comprises a plurality of destination servers; wherein the delivery failures are based upon a failure to deliver email messages to said destination servers; and wherein the common characteristic comprises having respective message boxes hosted by a common destination server.

4. (Original) The communications system of Claim 1 wherein said controller stores directly in said second queue email messages generated by said communications devices sharing the common characteristic with an email message already stored in said second queue.

5. (Original) The communications system of Claim 1 wherein said second queue comprises a plurality thereof arranged in a hierarchy each having a respective storage interval associated therewith, the storage intervals successively increasing from a highest queue in the hierarchy to a lowest queue; wherein said controller moves email messages stored in said first queue to one of the queues in the hierarchy based

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upon a delivery failure; and wherein said controller moves email messages stored in a higher queue in the hierarchy to a next lower queue in the hierarchy after being stored in said higher queue for the storage interval thereof.

6. (Original) The communications system of Claim 5 wherein said controller attempts to send messages from each of said queues in the hierarchy at successively decreasing sending rates from said highest queue to said lowest queue.

7. (Original) The communications system of Claim 5 wherein said controller discards messages from said lowest queue in the hierarchy after being stored therein for the storage interval thereof.

8. (Original) The communications system of Claim 1 wherein at least one of said plurality of communications devices comprises a wireless communications device.

9. (Original) The communications system of Claim 1 further comprising a wide area network (WAN) connecting said at least one destination server and said delivery server.

10. (Currently Amended) A delivery server for delivering electronic mail (email) messages from a plurality of communications devices to at least one destination server hosting a plurality of email message boxes, each email message being associated with a respective message box, said delivery server comprising:

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a plurality of queues; and
a controller for

storing the email messages generated by the communications devices in a first queue, and attempting to send the stored email messages to the at least one destination server at a first sending rate, moving email messages stored in said first queue to a second queue based upon receipt of a delivery failure message,

attempting to send email messages stored in said second queue to the at least one destination server at a second sending rate less than the first sending rate, and

moving email messages having a common characteristic with a successfully delivered email message from said second queue to said first queue ~~having a common characteristic with a successfully delivered email message.~~

11. (Original) The delivery server of Claim 10 wherein the delivery failures are based upon a failure to deliver email messages to respective message boxes; and wherein the common characteristic comprises a common message box.

12. (Original) The delivery server of Claim 10 wherein the at least one destination server comprises a plurality of destination servers; wherein the delivery failures are based upon a failure to deliver email messages to the destination servers; and wherein the common characteristic

comprises having respective message boxes hosted by a common destination server.

13. (Original) The delivery server of Claim 10 wherein said controller stores directly in said second queue email messages generated by the communications devices sharing the common characteristic with an email message already stored in said second queue.

14. (Original) The delivery server of Claim 10 wherein said second queue comprises a plurality thereof arranged in a hierarchy and each having a respective storage interval associated therewith, the storage intervals successively increasing from a highest queue in the hierarchy to a lowest queue; wherein said controller moves email messages stored in said first queue to one of the queues in the hierarchy based upon a delivery failure; and wherein said controller moves email messages stored in a higher queue in the hierarchy to a next lower queue in the hierarchy after being stored in said higher queue for the storage interval thereof.

15. (Original) The delivery server of Claim 14 wherein said controller attempts to send messages from each of said queues in the hierarchy at successively decreasing sending rates from said highest queue to said lowest queue.

16. (Original) The delivery server of Claim 14 wherein said controller discards messages from said lowest queue

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in the hierarchy after being stored therein for the storage interval thereof.

17. (Currently Amended) An electronic mail (email) communications method comprising:

hosting a plurality of email message boxes on at least one destination server;

generating email messages each associated with a respective message box;

storing the email messages generated by the communications devices in a first queue;

attempting to send the stored email messages to the at least one destination server at a first sending rate;

moving email messages stored in the first queue to a second queue based upon receipt of a delivery failure message;

attempting to send email messages stored in the second queue to the at least one destination server at a second sending rate less than the first sending rate; and

moving email messages having a common characteristic with a successfully delivered email message from the second queue to the first queue ~~having a common characteristic with a successfully delivered email message.~~

18. (Original) The method of Claim 17 wherein the delivery failures are based upon a failure to deliver email messages to respective message boxes; and wherein the common characteristic comprises a common message box.

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19. (Original) The method of Claim 17 wherein the at least one destination server comprises a plurality of destination servers; wherein the delivery failures are based upon a failure to deliver email messages to the destination servers; and wherein the common characteristic comprises having respective message boxes hosted by a common destination server.

20. (Original) The method of Claim 17 wherein storing further comprises storing directly in the second queue email messages generated by the communications devices sharing the common characteristic with an email message already stored in the second queue.

21. (Original) The method of Claim 17 wherein the second queue comprises a plurality thereof arranged in a hierarchy and each having a respective storage interval associated therewith, the storage intervals successively increasing from a highest queue in the hierarchy to a lowest queue; wherein moving email messages to the second queue comprises moving email messages to one of the queues in the hierarchy; and further comprising moving email messages stored in a higher queue in the hierarchy to a next lower queue in the hierarchy after being stored in the higher queue for the storage interval thereof.

22. (Original) The method of Claim 21 wherein attempting to send messages stored in the second queue comprises attempting to send messages from each of the queues in the

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hierarchy at successively decreasing sending rates from the highest queue to the lowest queue.

23. (Original) The method of Claim 21 further comprising discarding messages from the lowest queue in the hierarchy after being stored therein for the storage interval thereof.

24. (Currently Amended) A computer-readable medium having computer-executable instructions for performing steps comprising:

storing email messages generated by a plurality of communications devices in a first queue, each email message having a respective message box associated therewith from among a plurality of message boxes hosted by at least one destination server;

attempting to send the stored email messages to the at least one destination server at a first sending rate;

moving email messages stored in the first queue to a second queue based upon receipt of a delivery failure message;

attempting to send email messages stored in the second queue to the at least one destination server at a second sending rate less than the first sending rate; and

moving email messages having a common characteristic with a successfully delivered email message from the second queue to the first queue ~~having a common characteristic with a successfully delivered email message.~~

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25. (Original) The computer-readable medium of Claim 24 wherein the delivery failures are based upon a failure to deliver email messages to respective message boxes; and wherein the common characteristic comprises a common message box.

26. (Original) The computer-readable medium of Claim 24 wherein the at least one destination server comprises a plurality of destination servers; wherein the delivery failures are based upon a failure to deliver email messages to the destination servers; and wherein the common characteristic comprises having respective message boxes hosted by a common destination server.

27. (Original) The computer-readable medium of Claim 24 wherein storing further comprises storing directly in the second queue email messages generated by the communications devices sharing the common characteristic with an email message already stored in the second queue.

28. (Original) The computer-readable medium of Claim 24 wherein the second queue comprises a plurality thereof arranged in a hierarchy and each having a respective storage interval associated therewith, the storage intervals successively increasing from a highest queue in the hierarchy to a lowest queue; wherein moving email messages to the second queue comprises moving email messages to one of the queues in the hierarchy; and further comprising computer-executable instructions for performing the step of moving email messages stored in a higher queue in the hierarchy to a next lower queue

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in the hierarchy after being stored in the higher queue for the storage interval thereof.

29. (Original) The computer-readable medium of Claim 28 wherein attempting to send messages stored in the second queue comprises attempting to send messages from each of the queues in the hierarchy at successively decreasing sending rates from the highest queue to the lowest queue.

30. (Original) The computer-readable medium of Claim 28 further comprising computer-executable instructions for performing the step of discarding messages from the lowest queue in the hierarchy after being stored therein for the storage interval thereof.